International Journal of Heritage and Sustainable Development

ISSN: 1647-4112
eISSN: 2182-2751

Volume 4
Number 1 - 2015

Editor-in-Chief
Sérgio Lira

http://www.ijhsd.greenlines-institute.org
ijhsd@greenlines-institute.org

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ISSN 1647-4112 (print) ISSN 2182-2751 (on line)
www.ijhsd.greenlines-institute.org

International Journal of Heritage and Sustainable Development
Vol. 4, No. 1, 2015, pp. 75-87

The "restitution" of the castle of Colloredo di Monte Albano (Udine, Italy)

Giuseppe Cristinelli *Formerly Università IUAV di Venezia, Italy*

Vittorio Foramitti *Università degli Studi di Udine*
Dipartimento di Ingegneria Civile e Architettura, Udine, Italy
vittorio.foramitti@uniud.it

The Castle of Colloredo di Monte Albano was almost completely destroyed by two earthquakes in 1976. After the reconstruction of the main tower and the left wing, the project for the reconstruction of the remnant parts is now being implemented. The aim is the restitution of the buildings as they were before 1976, through the conservation and recovery of the surviving structures and the reconstruction of what has been lost. The recovery will require the inclusion of new public functions and the allocation of private residential units in the buildings. The restoration project has the aim to preserve any trace of what is still existing and to integrate the lacunae or gaps with a technique similar to the original one. Where the original parts or fittings are completely lost, the elements will be reconstructed also using contemporary technologies in renewed parts.

Introduction

The two earthquakes of May and September 1976 in italian region of Friuli Venezia Giulia heavily damaged the castle of Colloredo di Monte Albano, destroying the towers and large parts of the buildings. As it was one of the most important castles in the region from the architectural, historical and cultural point of view, it was decided to "restitute" it to the community, through the conservation of the surviving parts of the buildings and the philological reconstruction of what had been lost. In the eighties the main tower and the left wing were reconstructed and the project for the restoration of the remnant parts is now being implemented. The aim is the restitution of the buildings as they were before 1976, through the conservation and recovery of the surviving structures and the reconstruction of what has been lost. The recovery of the entire complex will require the inclusion of new public functions and the allocation of private residential units in the buildings.

The Castle: general description and history

The Castle of Colloredo di Monte Albano is one of the largest feudal castles in the italian region of Friuli and one of the most important from the point of view of history and culture, in relation to the literary and historical memories bound to the manor. There lived the friulan poet Ermes di Colloredo (1622-1692) and Ippolito Nievo (1831-1861), the author of *Le confessioni di un ottuagenario*, and their bedrooms were conserved with the original furniture and decorations until 1976 (Custoza & di Colloredo Mels, 2003).

The site of the castle consists of a complex of buildings built over the centuries within a fortified enclosure on the top of a morainic hill (Miotti, 1978; Custoza, 1993). Starting from the west, the first building is the so-called West wing, now the seat of the offices of the Comunità Collinare del Friuli. Beside it there is the Nievo wing, also called the guard building because it is probably one of the oldest of the

castle, built next to the main entrance tower. The latter, located in the center of the southern front, was rebuilt in the Eighties after the almost total destruction of 1976. To the east of the tower is a curtain of crenellated walls and then the Red house, so called because in the sixteenth century was painted in that colour probably as a challenge against the opponent feudal family of Savorgnan.

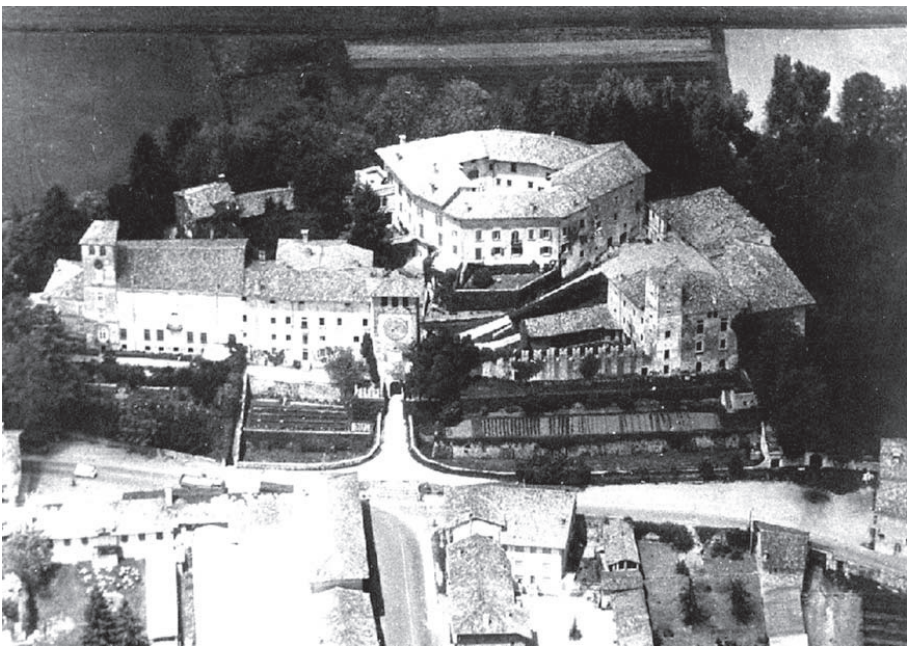

Figure 1. Aerial view from the south of the castle of Colloredo di Monte Albano before 1976.

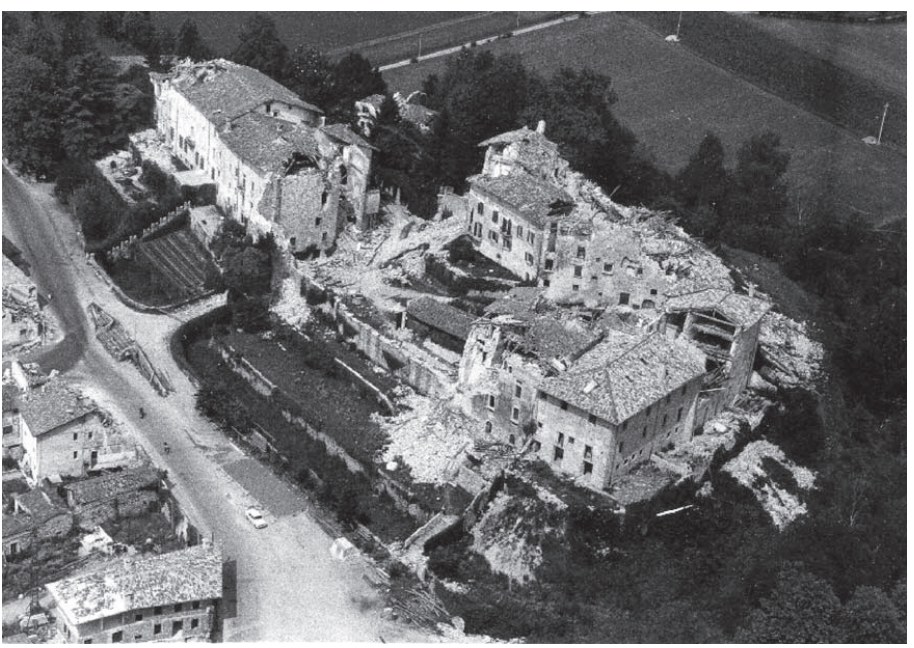

Figure 2. The castle after the earthquake of May 1976.

The East wing concludes the southern front and defines the eastern side of the complex. This wing is clearly divided into two parts: the southern, with more rural characteristics, and the northern, which was similarly used for rural functions but was adorned with a rustic architectural order and two series of arches on the first and second floor.

In the middle of the site and on the north side of the hill there is the Keep, an annular building that encloses a courtyard. It is the oldest part of the castle, whose construction goes back to the beginning of the fourteenth century. It was constantly modified and enlarged with new buildings along the walls over the centuries.

To the west of the Keep, within a walled courtyard, there is the so-called Nievo house, a small three-storey building part of which could have been one of the ancient towers of the outer wall.

The construction of the Castle of Colloredo began in 1302. It was probably initially formed by a stone wall that formed the enclosure of the Keep with the first manor house in the north-east corner. At the same time, or shortly after its foundation, the outer enclosure was built, maybe a fence, with towers and a central tower door.

In 1315 the castle was conquered and destroyed, but it was immediately rebuilt by the noble owners. During the fourteenth and fifteenth centuries was completed the construction of the buildings inside the Keep, the most ancient parts of the Nievo wing (the part near the tower , called the guard building) and the Red house. In 1511 the castle was attacked and partially burned during a peasant uprising and was also damaged by an earthquake.

Although in 1567 the castle was still described as a ruin, the reconstruction must have began soon after 1511 and new buildings were built in the site. In the sixteenth century were probably built or completed the West wing, which was decorated by Giovanni da Udine, and was later built the East wing, the southern part of which was called "new house", while the northern, built later, was called the "white house".

Over the centuries there have been many additions and interventions in the castle complex, including the modification of the façades with new wider windows, the interior restructuration of many buildings also modifying the floors height, the interior decoration with *stucco, marmorino* and mural paintings in the eighteenth and nineteenth century.

The two earthquakes of May and September 1976 have almost completely destroyed the castle and, to date, only the west wing and the main tower have been restored. The rest is still in the condition of a ruin. The only interventions were the shoring up of the damaged structures and the detachment of the frescoes of the Nievo wing, which are actually stored.

Figure 3. The south front of the castle before the earthquake.

Figure 4. Present view of the South front of the castle.

Figure 5. Project elevation of the South front.

The aims of the project

The project for the reconstruction of the largest portion of the castle was concluded in 2010 and is now is being implemented. The aim of the project is the restitution of the building as it was before the earthquake of 1976, through the conservation and recovery of the surviving structures and the reconstruction of what has been lost, on the basis of the surveys and photographic documentation made in the years before the earthquake.

The recovery of the entire complex will require the inclusion of new public functions and the allocation of private residential units in the buildings. Large portions of the complex will be assigned to museal, exhibition and congressual uses.

The whole project involves a volume of nearly 40,000 cubic meters. After the intervention, the interior area of the buldings will be of 7,207 square meters, 3,722 of which will be publicly owned, 3,132 privately for twenty flats and two units for craftsmanship uses. The remaining 353 square meters will be for mixed use. The total cost of the projected works amounts to almost twenty million Euros.

Figure 6. One of the rooms of the Nievo wing before 1976.

Figure 7. A living room in the Keep before 1976.

With the intervention the castle will be returned to the community in a integrated conservation approach, as it will be used for a set of functions suited to contemporary needs and to guarantee the constant maintenance of the asset.

The purpose of restoring the Castle of Colloredo also through a defined philological reconstruction is based on the most recent international cultural approaches on the matter of restoration and conservation. These approaches are based on the assumption that the consideration of architecture and architectural monuments cannot be limited to one of their components of material or formal nature or regarding their use, but must concern the architectural substance to which all these different points of view converge. In this case, the architectural substance is intelligible even where the seismic events have caused partial destruction and, in this sense, the restoration is conservative even where it takes the form of reconstruction, as it intends to conserve the memories and the cultural values of the complex. The reconstruction will not be based on conjecture or linguistic inventions, but will consist in a restatement of well documented elements. Without such partial reconstructions of the architecture, the castle would be deprived of its own integrity, and its authenticity will not be perceived anymore by the regional community which identifies itself in the monument. This is the meaning of the possibility to reconstruct a building allowed by the *Charter of Krakow 2000*: "reconstruction of an entire building, destroyed by armed conflict or natural disaster, is only acceptable if there are exceptional social or cultural motives that are related to the identity of the entire community" (Cristinelli, 2002). The guidelines given by the regional authority requested in fact the reconstruction of the castle in order to restore the image of the monument.

One of the aims of the project is also to make directly accessible for people with disabilities all public areas and buildings and adaptable most of the private ones, in compliance with the Guidelines for the elimination of architectural barriers in places of cultural interest edited by the Italian Ministry for cultural properties (Virdia et al., 2008).

Figure 8. The Nievo wing, present state.

Figure 9. Survey of the Nievo wing: in grey the portion still existent, in white the parts destroyed by the earthquake.

The project: method and principles

The project was commissioned by the Regione Autonoma Friuli Venezia Giulia to a project team coordinated by the Studio Altieri, where the architects Giuseppe Cristinelli, Manfred Wehdorn, Vittorio Foramitti and Stefano Campetti had the task to develop the architectural and restoration project.

The first phase of the project consisted in the preliminary researches aimed at the knowledge of the history and the characteristics of the site and of the buildings in their actual condition and how they were before the earthquake of 1976. This was done at first with a detailed survey of the site and the ruined buildings. On the present survey have been overlaid the surveys carried out by the architects Aldo Nicoletti and Giorgia König in the first half of the seventies, together with all informations drawn by old photographs.

In the plans, elevations and sections were highlighted with proper graphic the remaining parts, the parts and elements that existed before the earthquake, the safety interventions made after 1976, such as the masonry used for closing the openings and the coverings and shorings.

These drawings have been the fundamental basis for the development of the general architectural project, where have been defined the characteristics and the spatial distribution of all the buildings, verifying as well the possible location of the furniture and the elements of the electrical and heating systems in coherence with the characteristics of the rooms.

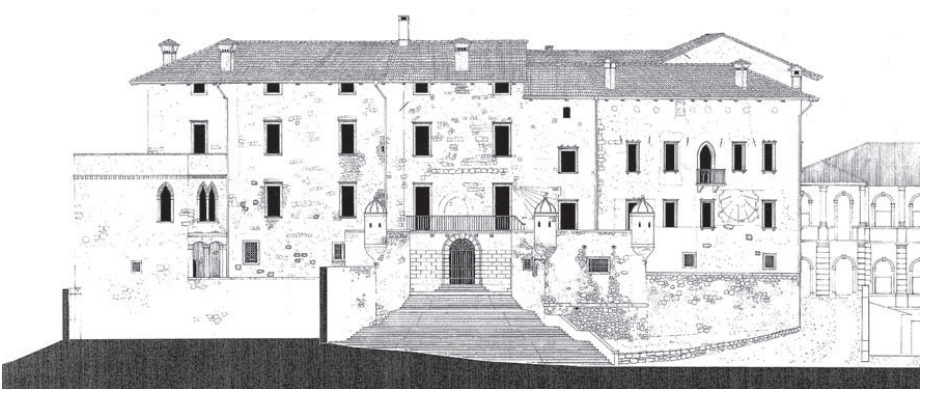

Figure 10. Survey of the Keep before the earthquake, by A. Nicoletti and G. König.

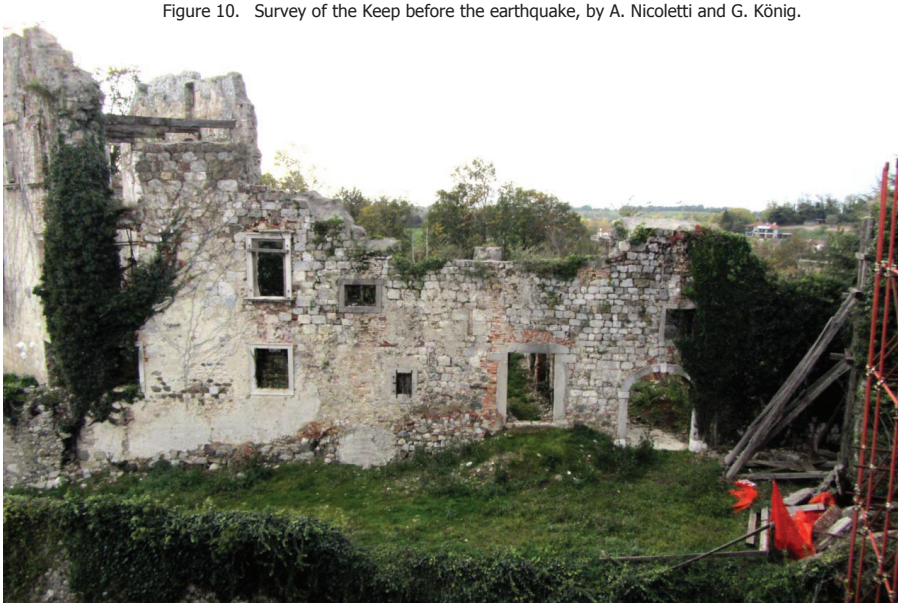

Figure 11. The East front of the Keep, present state.

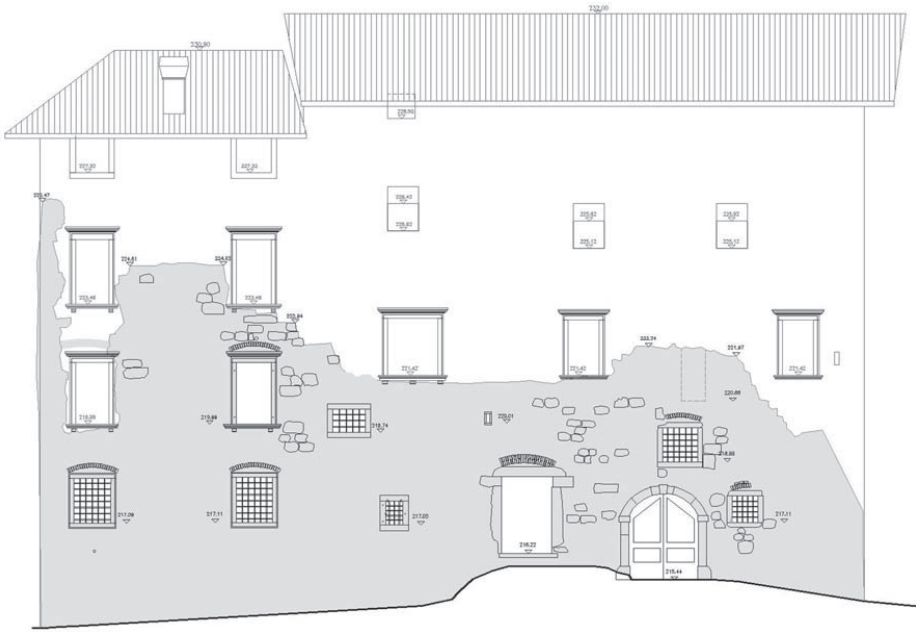

Figure 12. The East front of the Keep: in grey the portion still existent, in white the parts destroyed by the earthquake and to be reconstructed.

Figure 13. The East front of the Keep: the survey overlaid on the old photograph, with the indication of the height of the stone ashlars in the part to be rebuilt.

The various public and private functions have been placed into the complex so as not to alter the distribution except in the less significant parts, in order to achieve an outcome compatible with the architectural features of the existing buildings, conserving the most of every structure while ensuring an

optimal functionality for the new proposed uses. Moreover, has been taken into account the compliance with the fire safety regulations and those to ensure accessibility for people with disabilities. All the interventions necessary in order to achieve these requirements are placed in a manner compatible with the architectural features of the complex, without the insertion of elements invasive for the form or the perception. Accordingly with the fire safety regulations and the derogations admitted for cultural properties, in some buildings the crowding was limited and many fire exits were maintained in their original width. Only in the conference rooms placed in the East wing, that must be accessible to a large number of people, two stairs are provided with all the safety features. New elevators will be installed inside the buildings, placed where they cannot interfere with the spatial features of the buildings.

The project also includes the enhancement of the archaeological remains discovered in the last two decades inside the buildings, with their inclusion as part of the museal features. In the same way, the remains found on the outside, as the foundations of a building, maybe a tower, and other structures near the northern wall of the Keep (Tomadin, 1989; Tomadin, 1994; Tomadin, 2000), will be maintained visible along the new pedestrian way of access on that side.

In the northern side of the hill there will be a new road that connects the existing access to the West wing with the outside square. Parallel to this is planned the construction of the walkway that will allow the visibility of the archaeological area north of the Keep and which will reach the entrance to the castle situated between the Keep and the East wing.

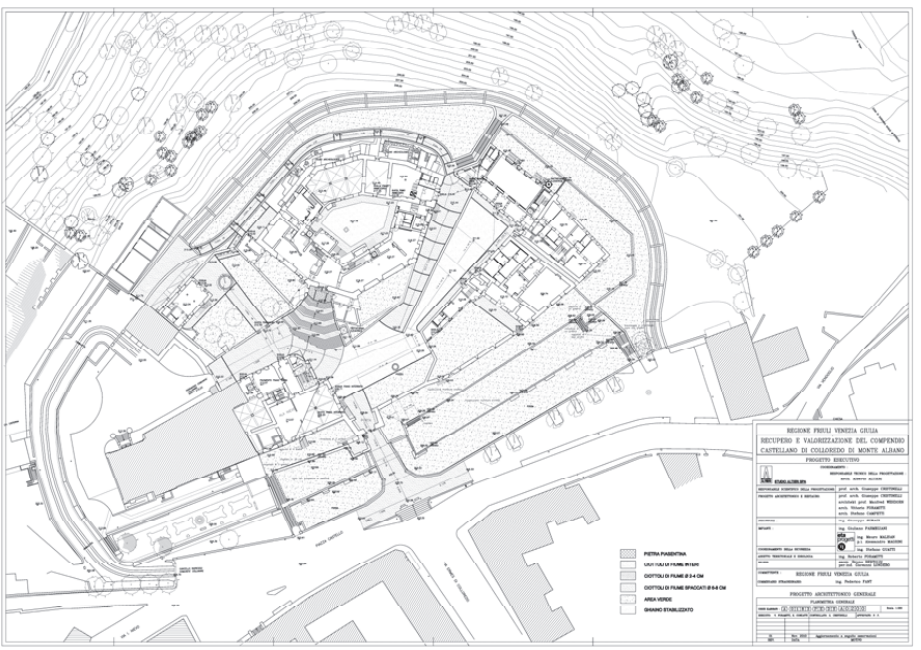

Figure 14. General project plan of the Castle.

The planned works: materials and technologies

The restoration project makes use of the traditional technologies of the existing buildings, with the aim to preserve any trace of what is still existing and to integrate the lacunae or gaps with a technique similar to the original one only when it is not possible to recover the original material on the ground.

Where the original parts or fittings are completely lost, the elements will be reconstructed according to their technological and constructive implications or, if this doesn't result acceptable from the technical or economic point of view, also contemporary technologies will be adopted.

The goal is always to ensure that there is physical and chemical compatibility between the existing parts and the reconstructed ones, and between the traditional and the innovative technology. All the reconstructions and integrations should not be seen as elements of contrast. They should be recognizable but must visually harmonize with the surviving parts.

It will be possible, however, to distinguish the old parts from those which have been rebuilt, and this through slight variations in grain or color, limited signs on the edges and, in the case of stone elements, differences in surfaces workmanship or etching the date of construction. The new elements, such as the iron stairs projected inside the buildings are limited and measured to satisfy real needs and stringent functional distribution. In these, an essential contemporary language is used, undertone in comparison with the context.

As regards the structural intervention, the analysis of the buildings has allowed the definition of the interpretative models of the existing structures and the definition of the necessary interventions. The project, aimed at the structural enhancement, provides for the conservation of surviving elements through the strengthening in order to restore their original structural capacity, possibly augmented by non-invasive technologies and compatible with the conservation requirements. The choice of intervention criteria was carried out on a case by case preferring techniques similar to those used in the original construction of the individual artifacts and giving priority to those experienced with satisfactory results.

Figure 15. The west front of the East wing before 1976.

Figure 16. The west front of the East wing after the earthquake.

Figure 17. The west front of the East wing, present condition.

Figure 18. Conservation project drawing of the west front of the East wing, with the indication of the different kinds of plaster, the degradation and the conservative interventions.

The stoneworks which constitutes the most part the walls will be conserved, injected with lime based mortar and strengthened with fiber reinforced lime plaster. The cracks will be repaired with the substitution of the broken elements with similar ones.

For the reconstruction of the collapsed parts, traditional building techniques will be adopted in most cases, in order to meet the requirement of compatibility with the surviving parts and the need to restore the original aspect of the castle. But this doesn't mean that all the structures will be reconstructed exactly with the same technology: the one meter thick stone walls will be reconstructed only with the outer side in stone ashlars, while the interior will be a brick masonry of 38cm. of thickness. To reach the original width of the wall, which is one of the features of this kind of building, a partition will be built in the inner side, leaving an interspace where can be placed the pipes for the plants and the insulation panels.

The conservative and architectural works have been defined after a detailed analysis of the existing buildings, and also on the basis of the surveys and photographs prior to the earthquake. In the drawings have been carefully described the constructive characteristics, the state of deterioration and the structural damages. These informations were used for the definition of the necessary conservative interventions and for the integration of the lacking parts.

In detail, starting from the ground floor, ventilated foundations and outer drainage trenches for the defense from moisture will be made. Floors and roofs will be reconstructed in wood with the conservation of the few original elements still surviving.

The few original floorings, still conserved in the ground floor, will be removed and replaced with the necessary integrations. Otherwise they will be made in brick and in the local limestone called *pietra piasentina*. On the upper floors the floorings are generally made of wooden planks, except in some rooms where they are documented in *terrazzo alla veneziana*, and will be rebuilt after some fragments found in the ruins.

The external faces of the walls will be conserved with cleanings, in depth sealing of joints, strengthening and restoration of the oldest plasters and removal of the newer ones made in cement mortar.

Those which have to be rebuilt will be made with similar materials and finishes, signaling the separation between the conserved and the reconstructed part. For the internal plasters the intervention will be cleaning, strengthening and integration, with the detachment and replacement of the oldest ones in order to allow the structural interventions.

As regards the frescoes originally present inside the buildings, most of those in the Nievo wing were removed immediately after the earthquake of 1976 and are now stored waiting for their replacement in the original position. The few fragments of wall paintings still present in the Nievo wing will be removed and replaced, as well as those recovered inside the Keep.

All the stone elements will be conserved and restored, the missing ones will be rebuilt with the same materials and forms.

The plants have been carefully designed so as to fit in the buildings without being invasive. For this reason, instead of using independent heating or cooling units for each of the buildings, a single heating and cooling plant will be positioned in a new building on the slope of the hill in the north west side of the site. This centralization of the plants has been also preferred for technical reasons, energy efficiency, minimization of operating costs and safety.

On the northern side, the walkway that surrounds the walls of the Keep has a slope of 5%, suitable for adequate autonomous use by people with disabilities, that allows direct access to the basement rooms of the Keep, otherwise only accessible via a steep ramp that starts from the inner courtyard.

Conclusions

The reconstruction of ruined buildings has always been a matter of discussion, generally with the opinion that the ruins must be carefully conserved in their conditions. Exceptions can be only admitted when the destruction is recent and caused by dramatic events such as wars, earthquakes, fire, etc., and when the monument is strongly representative of the identity and the culture of a population.

The castle of Colloredo is one of these monuments. The purpose of its reconstruction, even if made almost forty years after the earthquake for economic and bureaucratic reasons, is the restitution of an outstanding monumental complex in an integrated conservation approach, affording also new functions which "corresponding to the needs of contemporary life, respect their character and ensure their survival", as the Declaration of Amsterdam stated in 1975.

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eISSN 2182-2751

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